

United States Department of Agriculture



ENVIRONMENTAL QUALITY INCENTIVES PROGRAM

Environmental Assessment
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BACKGROUND

Introduction

The Natural Resources Conservation Service (NRCS) is promulgating a final regulation to implement the Environmental Quality Incentives Program (EQIP), 16 USC 3839aa et seq, as amended by the Farm Security and Rural Investment Act of 2002, P.L. 107-171 (May 13, 2002) ("the 2002 Act"). The program, as authorized by the Federal Agriculture Improvement and Reform Act of 1996 (P.L. 104-127 (April 4, 1996)), is currently being implemented under an interim final rule published at 7 CFR Part 1466. On July 24, 2002, NRCS published a Federal Register Notice of Availability of Program Funds to begin implementing EQIP in accord with the 2002 Act amendments. On February 10, 2003, NRCS published a proposed rule to implement EQIP under the 2002 Act amendments.

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies prepare Environmental Impact Statements (EIS's) for major federal actions significantly affecting the quality of the human environment. In addition, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500-1508) require Federal agencies to prepare Environmental Assessments (EA's) to assist them in determining whether they need to prepare an EIS for actions that have not been categorically excluded from NEPA. The CEQ has defined "major federal action" to include activities over which Federal agencies have control, including promulgation of regulations in which they exercise discretion.

NRCS regulations implementing the provisions of NEPA state that an EIS is normally required for "broad Federal assistance programs administered by NRCS when the environmental evaluation indicates there may be significant cumulative impacts on the human environment." (7 CFR 650.7 (a)(3).) The environmental evaluation indicates that, when focusing on the significant adverse impacts that NEPA is intended to help decision makers avoid and mitigate, it is unlikely there will be significant cumulative impacts on the quality of the human environment because of implementing EQIP, as amended by the 2002 Act. However, NRCS has developed this EA to review the effects of the proposed program and to assist in determining whether implementing EQIP as amended will significantly affect the quality of the human environment such that NRCS must prepare an EIS. At the same time NRCS published the proposed rule to implement EQIP, NRCS made available for public comment a draft EA and draft Finding of No Significant Impact (FONSI). NRCS received no comments on the draft EA or draft FONSI.

The proposed action under consideration here involves rulemaking, and no site-specific or ground-disturbing actions will occur as an immediate result of implementing the proposal. Additional environmental review at subsequent stages of program implementation will be undertaken consistent with NEPA requirements and NRCS regulations.

EQIP Statutory Requirements

The EQIP is a voluntary program providing both technical and financial assistance to agricultural producers across the nation. The purposes of EQIP, as amended by the 2002 Act, are to promote

agricultural production and environmental quality as compatible national goals, and to optimize environmental benefits by:

- (1) assisting producers in complying with local, State and national regulatory requirements concerning:
 - (A) soil, water, and air quality;
 - (B) wildlife habitat; and
 - (C) surface and groundwater conservation;
- (2) avoiding, to the maximum extent practicable, the need for resource and regulatory programs by assisting producers in protecting soil, water, air, and related natural resources and meeting environmental quality criteria established by Federal, State, Tribal, and local agencies;
- (3) providing flexible assistance to producers to install and maintain conservation practices that enhance soil, water, related natural resources (including grazing land and wetland), and wildlife while sustaining production of food and fiber;
- (4) assisting producers to make beneficial, cost-effective changes to cropping systems, grazing management, nutrient management associated with livestock, pest or irrigation management, or other practices on agricultural land; and
- (5) consolidating and streamlining conservation planning and regulatory compliance processes to reduce administrative burdens on producers and the cost of achieving environmental goals.

Some of these purposes are the same as those in the 1996 Act, but others are not. The 2002 Act states that a purpose of EQIP is to avoid the need for resource and regulatory programs. It also explicitly recognizes air quality as a resource concern that EQIP can address, and states that agricultural production and environmental quality are to be promoted as compatible goals. The 2002 Act also removed the reference to maximizing environmental benefits per dollar expended and replaced it with a reference to optimizing environmental benefits. Amendments made by the 2002 Act also removed references to the agricultural conservation program, the Great Plains conservation program, the water quality incentives program, and the Colorado River Basin salinity control program, all of which were programs EQIP replaced in 1996.

To achieve the purposes of EQIP, the Secretary of Agriculture is to provide technical assistance, cost-share payments, and incentive payments to producers who agree to implement structural practices, land management practices and/or to develop comprehensive nutrient management plans and to maintain all cost-shared practices for the life of the practice.

Under the 1996 Act, a producer who owned or operated a large confined livestock operation was not eligible for cost-share payments to construct an animal waste management facility. The 2002 Act removed that prohibition. In addition, the 2002 Act states that 60 percent of the funds made available for cost-share and incentive payments are to be used for practices related to livestock production rather than the 50 percent that was specified in the 1996 Act.

Another important change made by the 2002 Act was to make EQIP funds available to address resource concerns on non-industrial private forestland, as well as cropland, grassland, rangeland, and pastureland.

The 2002 Act also changed provisions relating to the evaluation of EQIP applications. The 1996 Act required the Secretary to give a higher priority to applications made in conservation priority areas, that maximized environmental benefits per dollar expended, or were in areas in which State or local governments provided financial or technical assistance to producers for the same conservation or environmental purposes. Instead, the 2002 Act states that in evaluating applications for cost-share and incentive payments, the Secretary is to accord a higher priority to assistance and payments that:

- encourage the use of cost-effective conservation practices; and
- address national conservation priorities.

The national conservation priorities are considered those issues identified as EQIP purposes.

Congress authorized the Commodity Credit Corporation (CCC) to provide funds to carry out the broad provisions of EQIP in the amounts of \$400 million in fiscal year 2002, \$700 million in fiscal year 2003, \$1 billion in fiscal year 2004, \$1.2 billion in each of fiscal years 2005 and 2006, and \$1.3 billion in fiscal year 2007.

In addition to the broad EQIP program, Congress included a new provision within EQIP that specifically focuses on ground and surface water conservation. Under this provision, the Secretary is to promote ground and surface water conservation by providing cost-share payments, incentive payments, and loans to producers. These payments are to be used to improve irrigation systems, enhance irrigation efficiencies, convert to production of less water-intensive agricultural commodities or dryland farming, improve water storage, mitigate the effects of drought, or institute other measures, so long as the assistance results in a net savings in groundwater or surface water operations. Congress authorized additional funds specifically to implement these provisions. The CCC is to make available \$25 million for fiscal year 2002, \$45 million for fiscal year 2003, and \$60 million for each of fiscal years 2004 through 2007. In addition, Congress authorized an additional total of \$50 million to carry out water conservation activities in the Klamath Basin in California and Oregon.

A copy of the EQIP section of the legislation, as amended by the 2002 Act, is shown in Appendix A.

PURPOSE AND NEED FOR ACTION

The need to which NRCS is responding by proposing action is the need to implement the EQIP program as amended by the 2002 Act in a manner that achieves the purposes for which Congress authorized EQIP, including:

- Assisting producers to comply with local, State, and national regulatory requirements concerning soil, water and air quality; wildlife habitat; and surface and groundwater conservation.
- Assisting producers to address national, State, Tribal and local resource concerns so there is no need for resource and regulatory programs.
- Providing flexible assistance to producers to install and maintain conservation practices that enhance soil, water, related natural resources (including grazing lands and wetlands), and wildlife, while sustaining production of food and fiber.
- Assisting producers to make beneficial, cost-effective changes to cropping systems, grazing management, nutrient management associated with livestock, pest or irrigation management, or other practices on agricultural land.

Statutory requirements, including the purposes referenced above, as well as the wide variety in the types of agricultural operations and related environmental and social concerns across the U.S., require that NRCS implement EQIP with flexibility to address differences in State, Tribal and local situations without undue bureaucratic burdens. Thus, State Conservationists must have a great deal of authority and flexibility to determine how best to implement EQIP within each State so the program achieves its purposes.

ALTERNATIVES

Introduction

Because of the authority and flexibility that must be given to State Conservationists to meet the program purposes, and because funding affects where practices will be implemented, the allocation of EQIP funds is the only major program decision made at the national level that has an impact on the quality of the human environment. The following alternatives describe different ways to allocate EQIP funds to the States. The 2002 Act authorized the expenditure of additional, separate funds for promotion of ground and surface water conservation, so a separate set of alternatives addresses allocation of those funds.

EQIP General Fund Allocation Alternatives

Alternative 1, “Proposed Action” – Allocate EQIP Funds Based on a National Allocation Formula

NRCS proposes allocating EQIP funds using a National Allocation Formula that includes multiple factors, with weights assigned to those factors according to national conservation priorities. The specific factors and weights may be modified as funds become available for allocation in order to address emerging issues and incorporate new information. This approach is similar to the approach used to allocate EQIP funds before the 2002 Act amendment. Use of

such a formula continues to be consistent with the requirements of the 2002 legislation because it includes factors that represent the broad purposes set forth in the 2002 Act amendment.

The proposed formula consists of 29 factors that apply to natural resource issues associated with agricultural and forestry activities. A federal interagency team developed the formula, and it includes factors that represent agricultural and forestry conditions and situations that contribute to resource issues. Only factors for which State level data is available are included. Members of the interagency team made their best professional estimate of the weight to assign each element to achieve the objectives of the program, including national priorities. The sources of the data used in the formula are the most recent National Resources Inventory¹ and Agricultural Census. The factors and historic weights assigned to each factor from 1997 through 2002 and which are proposed for use in 2003 are shown in Table 1. Though the formula has remained flexible since 1997, the components and weights have changed little. NRCS is not proposing any major changes to the formula as a result of the 2002 Act amendments.

Applying the formula to allocate funds is a three-step process. First, the available funds are divided between the 29 factors based on the proportionate weight of each factor. Second, the funds associated with each factor are allocated between States based on the percentage of that factor in each State. Third, the total funds allotted to each factor for each State is summed to determine the total allocation for each State. The following example illustrates allocation of \$1000 according to a formula with only three factors.

Step 1: Allocate funds between factors.

Factor	Factor 1	Factor 2	Factor 3
Weight	45.0%	25.0%	30.0%
Division of \$1,000 Between Factors	\$450.00	\$250.00	\$300.00

Step 2: Evaluate State data and distribute based on percentage of the factor in each State.

	Factor 1		Factor 2		Factor 3	
	Amount	Percent	Amount	Percent	Amount	Percent
State 1	125	64.1%	250	19.8%	17	32.7%
State 2	25	12.8%	450	35.7%	16	30.8%
State 3	45	23.1%	560	44.5%	19	36.5%
Total	195	100.0%	1,260	100.0%	52	100.0%

¹ For a description of the National Resources Inventory on the internet, see <http://www.nrcs.usda.gov/technical/NRI/>.

Step 3: Distribute funds to States.

	Factor 1	Factor 2	Factor 3	State Total
State 1	\$288	\$ 50	\$ 98	\$ 436
State 2	\$ 58	\$ 89	\$ 92	\$ 239
State 3	\$104	\$111	\$110	\$ 325
Total	\$450	\$250	\$300	\$1,000

Not all resource concerns to be addressed by EQIP are included as separate factors in the formula, because those concerns are considered an intrinsic part of the land use and the conservation practices normally applied to that land use and because they can best be addressed on a State-by-State basis. For example, wildlife is not explicitly listed as a factor in the allocation formula. However, forestland, cropland, grazing land, and riparian areas, as well as other identified land uses, have potential to serve as different types of wildlife habitat. On the other hand, because the legislation requires using 60 percent of EQIP funds to address natural resource concerns related to livestock production, several elements in the formula relate to livestock concerns, some of which are very specific.

Once NRCS allocates funds to the States based on the National Allocation Formula, the State Conservationist, with the advice of the State Technical Committee, has the discretion to use those funds to address resource issues of particular concern within the State, including improvement of wildlife habitat, so long as the actions taken are compatible with agricultural production. There is no specific guidance that State 1 must use \$50 of its allocation on Factor 2. The logic is that Factor 2, irrigated cropland for example, can be related to several different resource issues: water conservation, tail-water erosion, water quality issues from pesticide or chemigation, or air quality issues from diesel engines used to operate the irrigation system. Thus, the State Conservationist with the advice of the State Technical Committee is responsible for using the funds to address the most important resource concerns identified within their State.

Special Emphasis:

In addition to base allocations, EQIP has historically provided funds each fiscal year for projects and activities deemed a national priority. In the past, these have included funding for items such as Colorado River Basin Salinity Control efforts, Salmon Habitat Restoration, Groundwater Protection in the Edwards Aquifer region of Texas, Animal Waste Management, and Nutrient Management. Special emphasis funding allocations will continue to be made in line with the requirements of the 2002 legislation. For example, of the \$400 million authorized for EQIP in fiscal year 2002, \$2.337 million will be allocated to Colorado, \$1.9 million to Utah and \$467,500 to Wyoming to complete projects already planned to reduce the salinity of the Colorado River and meet treaty obligations to Mexico. These funds will be taken off the top of the total EQIP funding of \$400 million, with the remaining funds will be allocated according to the National Allocation Formula.

Table 1: EQIP Allocation Formula Factors

	<u>FACTOR</u>	<u>UNITS</u>	FY 1997	WEIGHT (%)			
				FY 1998-99	FY 2000-01	FY 2002	FY 2003
1.	Farms & Ranches	Number	4.006	3.008	0.000	2.041	2.01
2.	Limited Resource Producers	Number	1.547	2.400	2.410	2.341	2.31
3.	Federal Grazing Lands	Acres	0.760	1.035	1.070	0.250	0.00
4.	Cropland	Acres	6.215	0.000	0.000	4.401	4.34
5.	Cropland Erosion > T	Acres	6.512	6.601	6.800	6.602	5.80
6.	Irrigated Cropland	Acres	4.510	4.223	4.350	4.221	4.16
7.	Land In Specialty Crops	Acres	3.294	3.061	3.150	3.061	3.02
8.	Non-Federal Grazing Lands	Acres	3.363	3.326	3.430	3.301	1.38
9.	Pastureland Needing Treatment	Acres	4.261	4.327	4.460	5.332	5.16
10.	Forest land	Acres	2.258	2.400	2.470	0.250	0.25
11.	Other Land In Farms	Acres	2.486	1.974	2.040	1.981	1.95
12.	Water Bodies (< 40 & > 40 Acres)	Acres	2.624	2.800	2.810	2.731	2.69
13.	Wetlands	Acres	5.856	5.418	5.590	5.422	5.35
14.	Fair and Poor Rangeland	Acres	4.261	5.118	5.280	3.621	3.57
15.	Forest land Erosion > T	Acres	3.660	3.640	3.750	3.641	3.59
16.	Land Subject To Flooding	Acres	2.486	1.875	1.940	1.881	1.86
17.	Riparian Areas	Acres	4.420	4.400	4.600	4.461	4.40
18.	Land with Saline or Alkaline Problems	Acres	2.693	2.596	2.680	2.601	2.57
19.	Impaired Rivers & Streams	Miles	4.834	5.426	5.600	5.432	5.36
20.	Coastal Zone Land	Sq. Mi.	3.564	3.200	3.400	3.301	3.26
21.	Native American Tribal Lands	Acres	1.588	2.800	2.810	2.731	2.69
22.	Potential Pesticide & Nitrate Leaching (groundwater vulnerability)	Constant	5.235	5.244	2.715	2.626	2.59
23.	Potential Pesticide & Nitrate Runoff (surface water vulnerability)	Constant	0.000	0.000	2.715	2.626	2.59
24.	Animal Waste Generation	Tons	5.269	4.353	4.490	4.361	4.30
25.	Waste Management System Capital Cost	Dollars	5.318	5.132	5.290	5.132	5.06
26.	Livestock Animal Units	Animal Units	2.762	2.792	2.880	2.791	2.75
27.	Livestock Animal Units/Cropland (animal waste disposal)	Animal Units	6.215	6.220	6.415	6.222	6.14
28.	Population (millions)	Number	0.000	2.559	2.650	2.571	2.54
29.	Commercial Fertilizer/Cropland	Acres	0.000	4.071	4.205	4.071	4.02
30.	Wind Erosion >T	Tons	0.000	0.000	0.000	0.000	2.96
31.	Alaska/Hawaii/PacBasin/Caribbean	Constant	0.000	0.000	0.000	0.000	0.00
Totals			100.000	100.000	100.000	100.000	100.000

NRCS has historically provided 5 percent of available EQIP amounts to fund conservation on eligible Tribal lands.² However, since the amendments contained in the 2002 Act removed the emphasis on priority areas, Native American Tribal Lands will be a factor that is considered in

² In fiscal year 1998, \$10 million was provided to eligible Tribal lands; and in each of fiscal years 1999 through 2001, \$8.7 million was provided to eligible Tribal lands.

the National Allocation Formula, and targeting of EQIP funds for Native Americans will be at the discretion of the State Conservationist.

The Chief of NRCS approves the allocation amounts before the funds are released to the States.

Alternative 2 – Allocate EQIP Funds in Equal Amounts to All States

This alternative would result in each State and Territory receiving the same amount of EQIP funds as all other States and Territories. For example, each State and Territory would receive \$7,692,300 assuming \$400 million were available nation-wide.

Alternative 3 - No Action to Allocate EQIP General Funds

This alternative would result in no implementation of EQIP. This option is not a viable alternative because Congress has required that NRCS promulgate regulations to implement the program. It is used, however, as a baseline against which to consider the effects of other alternatives.

EQIP Ground and Surface Water Conservation Fund Allocation Alternatives

Alternative 4, “Proposed Action” – Allocate Ground and Surface Water Conservation Funds Based on an Annual National Evaluation of Critical Ground and Surface Water Conservation Needs

This alternative would allocate funds to different States each year based on the results of a national review of surface and groundwater conservation needs.

Alternative 5 – Allocate EQIP Ground and Surface Water Conservation Funds in Equal Amounts to All States

This alternative would result in each State and Territory receiving the same amount of EQIP funds as all other States and Territories. For example, each State and Territory would receive \$480,769 assuming \$25 million were available nation-wide.

Alternative 6 – No Action to Allocate EQIP Ground and Surface Water Conservation Funds

This alternative would result in no implementation of the Ground and Surface Water Conservation provisions of EQIP and is used primarily as a baseline against which to compare the effects of other alternatives.

IMPACTS

Introduction

The following section describes potential impacts associated with the alternatives described above. The alternatives addressed in this EA do not directly result in impacts to the quality of the human environment, but they do have an indirect effect on the geographic location of acres treated. Many of the same conservation practices will be implemented regardless of which alternative is selected; therefore, this Introduction provides an overview of the physical effects of the most frequently implemented EQIP practices. The discussion under each alternative then focuses on effects that the decision alternatives would have on where conservation practices would most likely be implemented.

NRCS developed network diagrams depicting the chain of natural resource effects resulting from the application of each practice. (See Appendix B.) Each of the diagrams first identifies the typical setting to which the practice is applied. This includes identification of the predominating land use and the resource concerns that trigger use of the practice. The diagrams then identify the practice used to address the resource concerns. Following identification of the practice, there is a description of the physical activities that are carried out to implement the practice. From there, the diagrams depict the occurrence of the direct, indirect and cumulative effects of the practice. Effects are qualified with a "+" or a "-" which denotes an increase ("+") or decrease ("-") in the effect. Pluses and minuses do not equate to good and bad or positive and negative. Only the general effects that are considered the most important ones from a national perspective are illustrated. In addition to the network diagrams, Appendix B includes a photo and summary description about how each of these practices is intended to be used and the general effects of using the practice.

The effects of the practices may vary somewhat depending on the local ecosystem(s), methods of practice installation, and presence of special resource concerns in a particular State, such as the presence of a coastal zone, endangered or threatened species, historic or cultural resources, and the like. While effects on these resources may be described in general terms at the national level, they must be addressed at the State and local level. This is particularly true for endangered and threatened species, historic preservation, historic and cultural resources, essential fish habitat and other resources that are protected by special authorities that require consultation. NRCS will consult on a State or site-specific level as needed and appropriate, to ensure EQIP program actions do not adversely affect special resources of concern. NRCS will also implement practices in a manner that is consistent with the NRCS policy to avoid, minimize or mitigate adverse effects to the extent feasible.

For example, to ensure compliance with the Endangered Species Act, State Conservationists will invite representatives of the U.S. Fish and Wildlife Service (FWS) and the National Oceanographic and Air Administration's Office of Fisheries (NOAA Fisheries, previously known as the National Marine Fisheries Service or NMFS), as applicable, to all State Technical Committee meetings and encourage their involvement in the development of program criteria within the State. NRCS will also conduct additional programmatic consultations with FWS and

NOAA Fisheries at the State level as needed to ensure EQIP program implementation is not likely to adversely affect species listed as endangered or threatened or species proposed for listing as endangered or threatened or designated or proposed critical habitat. Such consultation will also be used to identify ways the EQIP program might further the conservation of protected species and identify situations in which no site-specific consultation would be needed.³ Site-specific consultation will also be conducted as needed to avoid adversely affecting any protected species or habitat.

To ensure compliance with the National Historic Preservation Act and associated authorities, NRCS State Offices will follow the procedures outlined in the Advisory Council on Historic Preservation's (ACHP) regulations (36 CFR Part 800) or, in accordance with NRCS' alternate procedures (nationwide Programmatic Agreement), invite State Historic Preservation Officers (SHPO's) and federally recognized Tribes (or their designated Tribal Historic Preservation Officers) to enter into consultation agreements that highlight and focus review and consultation on those resources and locations that are of special concern to these parties. In addition, if no State-level agreements are developed with the SHPO's or Tribes, and/or if other consulting parties are identified, they will be afforded, as appropriate, an opportunity to advise the NRCS State Office during project-specific planning about their historic and cultural resource concerns so that they may be taken into account in accordance with the ACHP regulations. Similar processes will be followed, as needed and appropriate, to address other special requirements for the protection of the environment.

EQIP Conservation Practices

The conservation practices expected to be used most commonly in EQIP address resource concerns related to either cropland, grazing land, animal feeding operations (AFO's) or non-industrial private forestland. Appendix C identifies, by State, the EQIP conservation practices most often cost-shared and implemented from 1997 through 2002.

³ In addition to situations in which NRCS determines there is no effect on protected species or habitat, site-specific consultation should not be needed when NRCS and FWS or NOAA Fisheries agree a category of proposed actions is not likely to adversely affect a protected species or habitat and NRCS obtains written concurrence based on that agreement.

Cropland

The practices used most commonly on cropland under the EQIP program are identified in Table 2.

Table 2: Most Frequently Used Cropland Practices

Practice Name	Practice Number⁴
Conservation Crop Rotation	328
Contour Buffer Strips (Herbaceous)	332
Contour Farming	330
Cover Crop	340
Critical Area Planting	342
Diversion	362
Filter Strip	393
Grade Stabilization Structure	410
Grassed Waterway	412
Irrigation Water Conveyance (AA-EE)	430
Irrigation Water Management	449
Nutrient Management	590
Pest Management	595
Residue Management, Mulch Till	329B
Residue Management, No Till/Strip Till	329A
Residue Management, Ridge Till	329C
Residue Management, Seasonal	344
Riparian Forest Buffers	391
Terrace	600
Upland Wildlife Habitat Management	645
Wetland Restoration	657
Wetland Wildlife Habitat Management	644
Windbreak/Shelterbelt Establishment	380

These practices are generally designed to reduce erosion, redirect water flow, enhance crop production, produce bio-fuels and other bio-products, enhance wildlife food and cover and/or reduce surface runoff that may carry contaminants to receiving water. They perform these functions by creating channels, covering the soil with live vegetation or crop residues, creating barriers, planting crops or other vegetation with specialized characteristics, or adjusting the timing and techniques used to apply fertilizers or pesticides.

In addition to the primary effects mentioned above, other effects, both positive and negative, may occur. Livestock feed production, soil organic matter, and biodiversity may increase. Carbon sequestration may increase, while particulate matter generation and transport may decrease. Nutrient cycling may be improved, and the corresponding need for purchased nutrients

⁴ Practice numbers are assigned by NRCS for eases of reference and are found in the NRCS National Handbook of Conservation Practices.

may decrease. Aesthetics may also be improved. Snow trapping may occur, saline seeps may be reduced, and water use efficiency by crops may be improved. Many of the practices will also result in an initial up-front cost and increase in fuel use when they are installed. However, the total costs and fuel used on the cropland may eventually be decreased because of increased efficiencies resulting from the installation. Many of the practices will also decrease runoff while correspondingly increasing infiltration, which may result in both positive and negative effects.

The direct effects lead to indirect effects. Improved wildlife habitat should lead to increased wildlife, reduced runoff and erosion should lead to reduced loss of soluble and sediment-bound contaminants to receiving water bodies, and snow trapping should lead to increased water storage, leading to healthier crops in many cases, as well as a reduced need for irrigation water. Reduced need for nutrient and pesticide applications will reduce farmer costs, leading to increased net income.

Indirect effects lead to cumulative effects such as income stability for farmers and communities, improved air quality, water quality, habitat suitability and environmental health. These effects occur when the practice is applied within the same watershed or region on many farms or fields, as might be expected when the EQIP program is implemented.

Grazing Lands

Grazing lands include a myriad of land uses: rangelands, pasturelands, haylands, grazed forestlands, grazed croplands, and naturalized pastures. The practices most commonly implemented under EQIP to improve the quality of grazing land are identified in Table 3.

Table 3: Most Frequently Used Grazing Land Practices

Practice Name	Practice Number⁵
Animal Trails and Walkways	575
Brush Management	314
Critical Area Planting	342
Fence	382
Forage Harvest Management	511
Pasture/Hayland Planting	512
Pipeline	516
Pond	378
Prescribed Burning	338
Prescribed Grazing	528A
Range Planting	550
Spring Development	574
Use Exclusion	472
Watering Facility	614

These practices are generally designed to provide feed and water for livestock production; enhance wildlife food and habitat; enhance plant biodiversity; protect air, soil, and water resources; and provide a basis for diversifying farm income.

Practices frequently used to carry out these functions are manipulation of livestock numbers, grazing intensity, duration, and distribution. Other practices used to augment these are clipping, crop rotation, drainage, fertilization, and addition of soil amendments, irrigation, land clearing, mechanical harvest, pest control, vegetative plantings, rock picking, selection and/or protection of plant species, tillage, brush management, watering facility development, and livestock use exclusion.

In addition to the primary effects mentioned above, other effects, both positive and negative, may occur. Improved plant growth and condition can result from controlling erosion on steep slopes and around feed areas. The increase in plant cover protects streams, ponds, and other water supplies from sediment and other possible contaminants, as well as providing food for livestock and wildlife and decreased potential for wind erosion and particulate matter generation. Soil condition may be improved, resulting in increased nutrient cycling, organic matter, and carbon sequestration. Equipment, labor, materials, and maintenance may result in added costs to the producer in order to provide water, erosion control, and other associated conservation measures and controls.

The direct effects can lead to indirect effects. Controlled access to sensitive areas should lead to a reduction in contaminants, pathogens, and sediments in receiving waters, as well as protection and productivity of desired plant species. Development of water facilities and mechanisms for providing source water for livestock leads to an increase in animal health and production and

⁵ Practice numbers are assigned by NRCS for ease of reference and are found in the NRCS National Handbook of Conservation Practices.

sometimes benefits wildlife. These same practices may interfere with natural water flow and/or enhance saltwater intrusion and possibly allow potential contaminants into water bodies. Some wildlife species may also be negatively affected.

Indirect effects lead to cumulative effects such as income stability for producers and communities, improved water quality, habitat suitability, and human and animal health.

Animal Feeding Operations

The conservation practices that are most commonly used with AFO's under the EQIP program are identified in Table 4.

Table 4: Most Frequently Used AFO Practices

Practice Name	Practice Number⁶
Composting Facility	317
Heavy Use Area Protection	561
Manure Transfer	634
Roof Runoff Structure	558
Waste Storage Facility	313
Waste Treatment Lagoon	359
Waste Utilization	633

Collectively, these practices provide a means of minimizing the potential harm to water quality from nutrients and pathogens associated with animal manure and at the same time, using the beneficial properties of manure to enhance soil fertility.

The primary physical change as a result of these practices often includes the construction of a structure to store and/or treat animal manure and the purchase and use of equipment for handling and moving it. The direct effects include the costs associated with this infrastructure, including operation, maintenance and energy costs. Benefits include compost that can be used on-farm or sold; the storage of manure that can be applied at the appropriate time and amounts to crops and pastures; and the reduction in pollutants (nutrients, organics, pathogens and pesticides) in runoff because the material is stored and composted rather than directly discharged to waterways. To some, the presence of AFOs and the associated practices are a perceived nuisance or a regulatory concern under the Clean Air Act. Odors and release of pollutants regulated by the Clean Air Act can be associated with some agricultural operations. Implementing some of the practices identified in Table 4 can reduce associated emissions.

The direct effects provide indirect effects, such as enhanced plant productivity because of improvement in soil nutrients and soil tilth. Farms need less commercially purchased fertilizer as a result of manure utilization. Increased plant productivity and less cost for fertilizers are an economic benefit to farms. Supporting agribusiness, such as harvesting-associated businesses,

⁶ Practice numbers are assigned by NRCS for ease of reference and are found in the NRCS National Handbook of Conservation Practices.

may be enhanced by increased crop production, although certain sectors, such as the commercial fertilizer industry, may not. The reduced flow of pollutants to streams and other waterbodies can reduce noxious algal growth and enhance dissolved oxygen, thereby helping to meet water quality standards. Use of waste treatment lagoons and methane digesters can capture the greenhouse gas methane and use it to generate electricity which can then sometimes be sold to the rural utility grid.

The cumulative effects, in general, can often lead to better water quality of streams, which benefits both the aquatic habitat of the streams and the people and domestic and wild animals that rely on the streams as a source of water. Income stability of the farmer and the community are enhanced because manure represents a valuable by-product that is utilized to its greatest potential. Without the collection of practices to process and utilize the manure by-product of AFO's, the cumulative effects would weigh strongly toward environmental degradation.

Forestry

Farmers and ranchers with grazed or ungrazed forest land on all or part of their operating units are referred to as Non-industrial Private Forest Land (NIPF) owners, an ownership group of nearly 10 million people that comprises 300 million acres in the United States. Practices used on forest land and in agroforestry practices are in Table 5. The practices known as forestry practices are: Alley Cropping, Riparian Forest Buffer, Windbreak/Shelterbelt Establishment, and Windbreak/Shelterbelt Renovation. There is growing interest in the use of these practices to establish new forests and for carbon sequestration, production of bio-products such as fuel, and mitigation of odor and particulate matter transport from livestock operations. The use of practices in systems has high potential to increase forage and wood fiber yields and diversify incomes. One of these practices in particular, silvopasture, has great potential to reduce fuel loads on forest floors around communities.

Table 5: Most Frequently Used Forestry Practices

Practice Name	Practice Number⁷
Alley Cropping	311
Firebreak	394
Forest Site Preparation	490
Forest Stand Improvement	666
Forest Harvest Trails and Landings	655
Prescribed Burning	338
Riparian Forest Buffer	391
Tree/Shrub Establishment	612
Tree/Shrub Pruning	660
Use Exclusion	472
Windbreak/Shelterbelt Establishment	380
Windbreak/Shelterbelt Renovation	650

⁷ Practice numbers are assigned by NRCS for ease of reference and are found in the NRCS National Handbook of Conservation Practices.

On forest land, the practices are often employed chronologically and, starting with currently non-forested conditions, include: Forest Site Preparation, Tree/Shrub Establishment, Forest Stand Improvement (thinning), Access Roads and Forest Trails and Landings, and Forest Stand Improvement (harvest). Riparian Forest Buffers are used on forest land having water bodies, watercourses and wetlands.

Direct effects of forestry systems on forest land include the establishment and growth of woody vegetation that quickly alters the characteristics of habitat on a spatial and vertical basis, accumulates marketable and renewable wood fiber, and sequesters large amounts of carbon in biomass and the soil profile. If and when a forest stand is harvested, roads, trails, landings and cutover areas are created which can permanently or temporarily alter local hydrology, wildlife movement, types of wildlife, forage growth and accessibility, and risk of wildfire. Various practices are employed to mitigate any direct and indirect effects from harvesting considered to be adverse, e.g., Firebreak, Critical Area Planting, Sediment Basin, and Structure for Water Control.

Other effects such as increased forage growth from forest stand improvement and animal accessibility from harvest trails and landings may stimulate the use of livestock and trigger the need for Prescribed Grazing and related practices. Opening the canopy also has wildlife effects such as fewer "closed canopy" species and more "open habitat" species with species richness being augmented by the increase of "edge effect" from a mosaic of harvested, regenerated and older forested areas being in close proximity.

On agricultural land, Windbreak/Shelterbelt Establishment and Windbreak/Shelterbelt Renovation, Riparian Forest Buffer and Alley Cropping are the primary agroforestry practices that are strategically located as integral parts of cropland systems to optimize pollution mitigation, aesthetics and habitat, and to provide wood crops in addition to traditional farm crops.

Effects of agroforestry practices such as alley cropping and windbreaks on agricultural land are similar to forestry/forest land effects but are more pronounced for increasing wildlife habitat ("refuge" effect) and less so for generating wood-fiber products (tree/shrub "agroforest" areas are typically of small extent in the overall agricultural landscape). However, when practices are used as part of a system such as silvopasture, significant wood fiber and effects more closely aligned to forestry/forest land are achieved. Mitigation of wind, water, and farm-related pollutants are a primary focus of many other agroforestry systems.

Effects from both forestry and agroforestry systems lead to cumulative effects such as income stability for farmers and communities, water quality improvements, habitat suitability and environmental health. These effects occur when the systems and practices are applied within the same region on many forests, farms or fields, as might be expected when EQIP is implemented over a period of years. Without the proper application and organization of forestry and agroforestry practices, cumulative effects would weigh strongly toward environmental degradation.

EQIP General Fund Allocation Alternatives

Alternative 1, “Proposed Action” – Allocate EQIP Funds Based on a National Allocation Formula

This alternative is the preferred option. Use of a National Allocation Formula ensures funds are distributed so that environmental benefits are optimized and States and Territories with the most significant environmental and natural resource concerns can effectively address national conservation priorities. The formula includes factors covering a broad range of agricultural land uses and natural resource concerns. The factors are weighted to ensure the national conservation priorities related to agricultural production are addressed. The formula also takes into account the proportionate amount of each factor that exists in each State. This means that technical and financial assistance are going to the States having the greatest environmental needs related to agriculture.

Table 6 shows the distribution of funds each State and Territory would receive if \$4 million were available to allocate using the National Allocation Formula and compares the differences between amounts with the weighting factors applied in FY 2002 and those proposed for use in FY 2003. After the funds are allocated to the States, it is the responsibility of the State Conservationist to accept eligible applications for participation, evaluate those applications based on their ability to optimize environmental benefits, and develop contracts with those applicants selected to participate in the program. Appendix C identifies the practices implemented in each State from 1997 to 2002. It is likely the resource concerns identified during those years will be similar to those implemented under the new program, though there may be a broader range of practices used in each State since EQIP is no longer targeted to priority areas.

It is through use of a National Allocation Formula and implementation of the practices identified by each State that the greatest cumulative impacts and objectives, illustrated in the network diagrams, will be achieved. This process of targeting resources will address locally identified resource concerns in an efficient and effective manner.

**Table 6: Funding Allocations Using
FY 2002 and FY 2003 National Allocation Formulas**

STATE	ALLOCATION TOTALS	
	FY 02	FY 03
ALABAMA	\$8,039,960	\$7,692,613
ALASKA	\$1,000,030	\$1,048,336
ARIZONA	\$9,080,989	\$8,375,842
ARKANSAS	\$9,376,104	\$9,280,107
CALIFORNIA	\$20,489,452	\$21,296,844
COLORADO	\$10,614,340	\$13,969,984
CONNECTICUT	\$1,754,097	\$1,670,568
DELAWARE	\$2,078,326	\$2,119,458
FLORIDA	\$10,391,392	\$11,061,824
GEORGIA	\$8,608,619	\$8,702,033
HAWAII	\$1,480,044	\$1,447,702
IDAHO	\$7,374,846	\$7,499,783
ILLINOIS	\$9,203,938	\$8,910,276
INDIANA	\$6,415,333	\$5,976,185
IOWA	\$11,067,953	\$10,525,836
KANSAS	\$11,921,236	\$11,494,988
KENTUCKY	\$7,523,057	\$6,699,033
LOUISIANA	\$7,744,965	\$7,767,560
MAINE	\$3,311,317	\$3,069,087
MARYLAND	\$3,628,319	\$3,627,202
MASSACHUSETTS	\$1,937,874	\$1,854,060
MICHIGAN	\$9,072,225	\$9,072,409
MINNESOTA	\$13,151,130	\$12,959,211
MISSISSIPPI	\$7,867,799	\$8,551,155
MISSOURI	\$12,298,432	\$11,345,557
MONTANA	\$12,966,309	\$11,924,740

STATE	ALLOCATION TOTALS	
	FY 02	FY 03
NEBRASKA	\$11,095,869	\$10,947,773
NEVADA	\$2,786,102	\$2,664,016
NEW HAMPSHIRE	\$1,378,678	\$1,249,616
NEW JERSEY	\$2,110,231	\$2,070,787
NEW MEXICO	\$11,883,686	\$10,715,345
NEW YORK	\$7,814,225	\$7,392,113
NORTH CAROLINA	\$9,372,916	\$9,427,448
NORTH DAKOTA	\$8,214,446	\$8,611,292
OHIO	\$8,020,135	\$7,437,118
OKLAHOMA	\$10,428,589	\$9,730,548
OREGON	\$8,492,943	\$7,651,069
PENNSYLVANIA	\$7,296,112	\$6,558,238
RHODE ISLAND	\$955,002	\$912,650
SOUTH CAROLINA	\$5,034,833	\$4,844,605
SOUTH DAKOTA	\$9,757,174	\$9,690,796
TENNESSEE	\$7,125,877	\$6,655,749
TEXAS	\$32,728,365	\$36,606,346
UTAH	\$5,471,651	\$9,635,375
VERMONT	\$2,064,379	\$1,896,995
VIRGINIA	\$7,357,311	\$6,845,767
WASHINGTON	\$8,175,631	\$7,653,137
WEST VIRGINIA	\$4,669,931	\$3,801,034
WISCONSIN	\$10,188,359	\$9,727,056
WYOMING	\$6,259,381	\$6,836,694
PACIFIC BASIN	\$720,022	\$599,049
PUERTO RICO	\$2,200,066	\$1,896,989
TOTAL	\$400,000,000	\$400,000,000

Alternative 2 – Allocate EQIP Funds in Equal Amounts to All States

This alternative would result in each State and Territory receiving the same amount of EQIP funds as all other States and Territories. For example, in fiscal year 2002, each State and Territory would receive \$7,692,300 if the \$400 million authorized were available to distribute nation-wide. In fiscal year 2007, for which \$1.3 billion has been authorized, each State and Territory would receive \$25 million. This approach would result in a wide discrepancy between the amounts States would receive per acre of farmland. In fiscal year 2007, in a State such as Rhode Island, with about 55,000 acres of farmland,⁸ the \$25 million would permit about \$455 to be spent on every acre of farmland in the State. However, a State such as Texas, with about 131,300,000 acres of farmland, would only receive the equivalent of about 20 cents per acre.

⁸ Figures on acres of farmland are taken from the 1997 Census of Agriculture. The definition of “farm” for purposes of the census includes every place from which \$1,000 or more of agricultural products were produced and sold or normally would have been sold during the census year.

Moreover, the 2002 legislation emphasizes assisting confined livestock operations with implementing comprehensive nutrient management plans to manage the manure generated at those operations in a way that is not harmful to the environment. By allocating the same amount of funds to each State, those States with large concentrations of confined livestock operations would not receive adequate amounts of funds to address this resource concern. The result would be funds being spent in States without large concentrations of confined livestock operations, on practices that, while having some environmental benefits, would not provide the most cost-effective treatment. Thus, this alternative would not likely result in EQIP funds going to States with the greatest environmental and resource needs, nor would it be likely to optimize environmental benefits or address national conservation priorities.

Alternative 3 – No Action to Allocate EQIP General Funds

If the EQIP general funds were not allocated, no EQIP program would be implemented. Farmers and ranchers participating in the program would most likely not be able to implement the more costly conservation practices on their own. There are concerns that federal, State and local environmental laws, such as the Clean Water Act, may eventually result in the inability of many agricultural producers to maintain viable farming and ranching operations. Most producers do not possess the required technical expertise required to plan and design the majority of conservation practices needed. They often lack the economic resources to implement the potentially expensive structural conservation practices required to adequately improve the efficiency of their operation and protect natural resources. Without EQIP, most of the conservation practices needed would not be implemented. Consequently, without the technical and financial assistance provided by EQIP, agricultural producers would face environmental and/or financial risks to their operations that those who participate in the program would not.

In addition, many agricultural producers do not have a good understanding of the science-based technology on which conservation systems are developed. They rely on the program technical assistance to provide them with the necessary education and information required to make sound decisions about which suite of practices to implement in order to address identified resource concerns.

While the cumulative total of environmental benefits of EQIP may be difficult to measure, the program does have an influence on the environmental health of the land both on and off-site. EQIP technical assistance provides the agricultural producer with sound knowledge of what is needed to protect and enhance the natural resources in a holistic approach. This holistic approach teaches the producer not only what conservation practices are necessary to achieve their goals and objectives and address the identified resource concern(s), but also teaches them why they are needed, how to implement and maintain them, and their impacts on other natural resources on the landscape. If there is no program, the opportunity to receive this extremely valuable technical assistance is reduced.

EQIP Ground and Surface Water Conservation Fund Allocation Alternatives

Alternative 4, “Proposed Action” – Allocate Ground and Surface Water Conservation Funds Based on an Annual National Evaluation of Critical Ground and Surface Water Conservation Needs

This alternative would allocate funds to different States each year based on the results of a national review of surface and groundwater conservation needs. For example, USGS data shows that the water levels of the Ogallala Aquifer, which is a critical source of groundwater and the major water supply for agricultural and municipal uses in the High Plains States, has been severely drawn down over the years and has severely restrictive recharge capabilities due to the geology of the area. If producers do not implement water conservation measures and practices, the aquifer will be depleted and irrigated agriculture, as well as drinking water sources for numerous municipalities in the High Plains, will be completely cut off. Thus, in fiscal year 2002, funds might be targeted at eight High Plains States - to provide water conservation incentives to address ground and surface water management. In later years, other regions might be targeted depending on conditions at the time.

Typical water conservation practices expected to be implemented using EQIP will include the conversion of surface flow (furrow) irrigation systems to low energy-highly efficient sprinkler irrigation systems that result in significant savings of water for the producer and the aquifer. Additional water conserving practices could include:

- Improving the efficiency of irrigation delivery systems by lining ditches, installing efficient piping, and developing efficient tailwater recovery systems that recycle irrigation water.
- Conversion of existing inefficient sprinkler irrigation systems to low energy-highly efficient sprinkler or drip irrigation systems.
- Conversion from high water consumptive use crops to significantly less water intensive crops.
- Practices that mitigate the effects of drought.

By implementing appropriate water conservation practices, multiple environmental benefits are achieved. Groundwater and surface water supplies are protected. Stream flows and aquifer levels are protected. By irrigating crops and forages more efficiently, production of biomass is improved and there is an increased potential for carbon sequestration and improvement of wildlife habitat.

Alternative 5 – Allocate EQIP Ground and Surface Water Conservation Funds in Equal Amounts to All States

This alternative would result in each State and Territory receiving the same amount of EQIP funds as all other States and Territories. For example, in fiscal year 2002, each State and Territory would receive \$480,769 based on having \$25 million available nation-wide.

This alternative would result in limited resources going to areas of the nation that have the greatest need for water conservation efforts. Areas of the nation that do not have as severe a

need for water conservation efforts would receive funds that may not be needed. It is unlikely this alternative would result in a cost-effective use of funds in a manner that optimizes environmental benefits.

Alternative 6 – No Action to Allocate EQIP Ground and Surface Water Conservation Funds

This alternative would result in no implementation of the Ground and Surface Water Conservation provisions of EQIP and is used primarily as a baseline against which to compare the effects of other alternatives.

Surface and groundwater depletion issues are often regional issues because aquifers, rivers, and streams do not stop at jurisdictional boundaries. Thus, there is little incentive for any one jurisdiction to invest in water conservation when others continue to use the water freely. Without a program that crosses jurisdictional boundaries, such as the Ground and Surface Water Conservation provisions of EQIP, severe depletion of surface and groundwater is likely to continue, threatening the continued viability of crop production, as well as other beneficial water uses in these regions. Thus, the impacts of this alternative would, for example, result in the continuance of the severe depletion of irrigation supplies in aquifers such as the Ogallala.

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APPENDICES

Appendix A –EQIP Legislation, as amended by the Farm Security and Rural Investment Act of 2002

Appendix B – EQIP Practice Photos, Descriptions and Network Diagrams

Appendix C – Top Ten EQIP Practices Implemented and Cost-Shared